

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
2 March 2006 (02.03.2006)

PCT

(10) International Publication Number  
WO 2006/021866 A1

(51) International Patent Classification:  
H01M 8/04 (2006 01)

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

(21) International Application Number:

PCT/IB2005/002511

(22) International Filing Date: 24 August 2005 (24.08.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2004-244676 25 August 2004 (25.08.2004) JP

(71) Applicant (for all designated States except US): TOYOTA JIDOSHA KABUSHIKI KAISHA [JP/JP], 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP)

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

(72) Inventor; and

(75) Inventor/Applicant (for US only): KANNO, Yoshihito [JP/JP], c/o Toyota Jidosha Kabushiki Kaisha, of 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP)

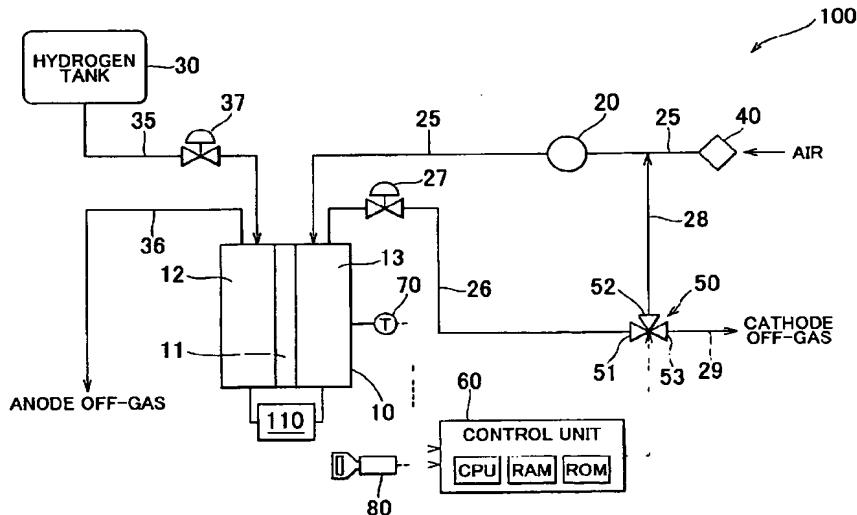
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

Published:

— with international search report

For two letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette

(54) Title: FUEL CELL SYSTEM



(57) Abstract: When an operation of a fuel cell system (100) is stopped, a flow of cathode off-gas into a circulation passage (28) is stopped. A stopped state of the flow of the cathode off-gas into the circulation passage (28) is held even after a start-up of the system (100) until the fuel cell (10) is brought into a predetermined state. Such structure prevents an outlet (52) of a three-way valve (50) from being frozen in an opened state. Accordingly, the cathode off-gas that contains large amount of water and nitrogen hardly flows into the fuel cell (10) accidentally. This makes it possible to restrain various types of trouble, for example, generation of flooding upon start-up of the system, decrease in the oxygen partial pressure, and decrease in the power generation efficiency resulting therefrom.

WO 2006/021866 A1